

ACTIVATION EXPERIMENT AT KUCA FOR ESTABLISHING AN EXPERIMENTAL FACILITY OF ACCELERATOR DRIVEN SUBCRITICAL REACTOR

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The present work is for the on-going project to establish an experimental reactor facility for Accelerator Driven Subcritical Reactor (ADSR) at Kyoto University Reactor Research Institute (KURRI). This experimental facility mainly consists of a 150 MeV accelerator and a critical assembly. The accelerator is a Fixed Field Alternating Gradient (FFAG) accelerator and will be newly installed for this project. The critical assembly is the existent Kyoto University Critical Assembly (KUCA). Our paper will describes the details of the project; the development plan of the project, the descriptions of the experimental facilities, the experimental issued and so on.

To establish this facility by employing the existent critical assembly, many experiments are required for modifying, revising and adjusting a critical assembly to match the new accelerator and to perform an ADSR experiment. Our paper will describe those experiments in details.

As a typical example of those experiments, this abstract describes an activation experiment to survey efficient method to conduct neutrons to a core of KUCA since a neutron target has to be placed outside a core. In the experiment, a D-T source by an existent accelerator was employed and a neutron target was placed at a reflector region outside a core. Several collimators especially designed for a KUCA core were placed between a core and the neutron target, and Indium wires were located beside the collimator for activating Indium wires and for measuring the $\text{In}(n,n')$ activity distributions. From the comparison of the results for different collimators, it is confirmed that the numbers of neutrons induced into a core are largely influenced by the size of collimator, and the appropriate collimator is found. The collimator is very helpful for increasing neutrons induced to a core. Including these experiments, our paper will be described about a lot of experiments performed for the new KURRI facility to perform effective experiments for ADSR.